MATHEMATICS FOR THE PRACTICAL MAN: EXPLAINING SIMPLY AND QUICKLY ALL THE ELEMENTS OF ALGEBRA, GEOMETRY, TRIGONOMETRY, LOGARITHMS, COÖRDINATE GEOMETRY, CALCULUS WITH ANSWERS TO PROBLEMS

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649455942

Mathematics for the Practical Man: Explaining Simply and Quickly All the Elements of Algebra, Geometry, Trigonometry, Logarithms, Coördinate Geometry, Calculus with Answers to Problems by George Howe

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GEORGE HOWE

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Trieste

MATHEMATICS

FOR

THE PRACTICAL MAN

Explaining Simply and Quickly all the Elements of Algebra, Geometry, Trigonometry, Logarithms, Coordinate Geometry, Calculus

WITH ANSWERS TO PROBLEMS

By

GEORGE HOWE, M.E.

THIRTY-SECOND THOUSAND

NEW YORK
D. VAN NOSTRAND COMPANY, Inc.
250 Fourth Avenue

Math 359. 11.21

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PRINTED IN U. S. A.

PRESS OF
BRAUNWORTH & CO., INC.
BOOK MANUFACTURERS
BROOKLYN, NEW YORK

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Brown Ayres, Ph.D.

PRESIDENT OF THE UNIVERSITY OF TENNESSEE

"MY GOOD FRIEND AND GUIDE."

PREFACE

In preparing this work the author has been prompted by many reasons, the most important of which are:

The dearth of short but complete books covering the fundamentals of mathematics.

The tendency of those elementary books which "begin at the beginning" to treat the subject in a popular rather than in a scientific manner.

Those who have had experience in lecturing to large bodies of men in night classes know that they are composed partly of practical engineers who have had considerable experience in the operation of machinery, but no scientific training whatsoever; partly of men who have devoted some time to study through correspondence schools and similar methods of instruction; partly of men who have had a good education in some non-technical field of work but, feeling a distinct calling to the engineering profession, have sought special training from night lecture courses; partly of commercial engineering salesmen, whose preparation has been non-technical and who realize in this fact a serious handicap whenever an important sale is to be negotiated and they are brought into competition with the skill of trained engineers; and finally, of young men leaving high schools and academies anxious to become engineers but who are unable to attend college for that purpose. Therefore it is apparent that with this wide

difference in the degree of preparation of its students any course of study must begin with studies which are quite familiar to a large number but which have been forgotten or perhaps never undertaken by a large number of others.

And here lies the best hope of this textbook. It "begins at the beginning," assumes no mathematical knowledge beyond arithmetic on the part of the student, has endeavored to gather together in a concise and simple yet accurate and scientific form those fundamental notions of mathematics without which any studies in engineering are impossible, omitting the usual diffuseness of elementary works, and making no pretense at elaborate demonstrations, believing that where there is much chaff the seed is easily lost.

I have therefore made it the policy of this book that no technical difficulties will be waived, no obstacles circumscribed in the pursuit of any theory or any conception. Straightforward discussion has been adopted; where obstacles have been met, an attempt has been made to strike at their very roots, and proceed no further until they have been thoroughly unearthed.

With this introduction, I beg to submit this modest attempt to the engineering world, being amply repaid if, even in a small way, it may advance the general knowledge of mathematics.

GEORGE HOWE.

NEW YORK, *September*, 1910.

TABLE OF CONTENTS

Chapter		Page
I.	Fundamentals of Algebra. Addition and Subtraction	1
II.	Fundamentals of Algebra. Multiplication and Division, I	7
III.	Fundamentals of Algebra. Multiplication and Division, II	12
IV.	Fundamentals of Algebra. Factoring	21
V.	Fundamentals of Algebra. Involution and Evolution	25
VI.	Fundamentals of Algebra. Simple Equations	29
VII.	Fundamentals of Algebra. Simultaneous Equations	41
VIII.	Fundamentals of Algebra. Quadratic Equations	48
IX.	Fundamentals of Algebra. Variation	55
X.	Some Elements of Geometry	61
XI.	Elementary Principles of Trigonometry	75
XII.	Logarithms	85
XIII.	Elementary Principles of Coördinate Geometry	95
XIV.	Elementary Principles of the Calculus	110